

**CLAIMS****What is claimed is:**

- 5      1. A screen printable hydrogel composition comprising:
  - (a) A soluble or partially soluble polymer wherein said polymer is a copolymer, interpolymer or mixture thereof;
  - (b) initiation system;
  - (c) thickener;
  - 10        (d) water; and
  - (e) solvent;

with the proviso that the composition has a viscosity of greater than about 10 Pa.s.
- 15     2. The composition of Claim 1 wherein said polymer is a photocrosslinkable polymer which is a copolymer, interpolymer or mixture thereof, wherein each copolymer or interpolymer comprises
  - (1) a nonacidic comonomer comprising a C1-10 alkyl acrylate, C1-10 alkyl methacrylate, styrenes, substituted styrenes or combinations thereof; (2) an acidic comonomer and its salts comprising ethylenically unsaturated carboxylic acid containing moiety, wherein 2-25% of the carboxylic acid containing moiety is reacted with a reactive molecule having a first and second functional unit, wherein the first functional unit is a vinyl group and the second functional unit is capable of forming a chemical bond by reaction with the carboxylic acid moiety; (3) third comonomer units formed from the reacted portion of acidic comonomers; and (4) a nonacidic comonomer comprising C1-10 alkyl or alkoxy methacrylate or acrylate.
- 30     3. The composition of Claim 2 wherein the vinyl group is selected from a methacrylate, acrylate group or mixtures thereof.
- 35     4. The composition of Claim 2 wherein the second functional unit is selected from an epoxide, alcohol, amine or mixtures thereof.
5. The composition of any one of Claims 1-4 further comprising a monomer.

6. The composition of Claim 5 wherein said monomer is selected from the group comprising polyoxyethylated trimethylolpropane triacrylate, ethylated pentaerythritol triacrylate, dipentaerythritol monohydroxypentaacrylate, 1,10-decanediol dimethacrylate and mixtures thereof.  
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7. The composition of any one of Claims 1-6 in which the solvent is selected from the group comprising carbitol acetate, ethanol, methyl ethyl ketone, acetone, and mixtures thereof.  
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8. The composition of any of Claims 1-7 wherein the thickener is selected from the group comprising polyvinyl pyrrolidone, fumed silica, polyethylene oxide, carboxymethyl cellulose, polyvinyl pyrrolidone/vinyl acetate copolymer, and mixtures thereof.  
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9. The composition of any one of Claims 1-8 further comprising an additive selected from the group comprising humectants, surfactants, biocides, preservatives and combinations thereof.
10. The composition of any one of Claims 1-9 further comprising an ionic component.  
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11. The composition of any of Claims 1-10 which is in the form of a paste suitable for screen printing.  
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12. A method of producing a processed hydrogel film comprising:
  - (a) providing a screen printable hydrogel composition;
  - (b) providing a substrate;
  - (c) depositing the composition in (a) onto said substrate via screen printing techniques; and
  - (d) processing said composition on said substrate to form a hydrogel film.  
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13. A method of producing a processed hydrogel film:
  - (a) providing the composition of any one of Claims 1-11;
  - (b) providing a substrate;  
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- (c) depositing the composition in (a) onto said substrate via screen printing techniques; and
- (d) processing said composition on said substrate to form a hydrogel film.

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- 14. A hydrogel film formed by the method of Claim 13.
- 15. An electrode utilizing the composition of any one of Claims 10 or 11.
- 10 16. An electrode utilizing the hydrogel film formed by the method of Claim 13.